

DCATT-MECH-PROC-001

Autocollimating Flat Handling Procedures

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DCATT Project Optical Flat Handling Procedures

Purpose

The purpose of this document is to explain how the DCATT autocollimating optical flat mirror is going to be handled from shipment from Zygo to GSFC, removed from the shipping crate and delivered to Building 7 for characterization testing, and installed into the AC Flat Support Frame

Current status:

Optical flat dimensions: cylinder 40.070" diameter, 7.400" thick.

Mass: 849.2 pounds

Material: Zerodur glass

Present location: Outside CIA room, Building 7

Present situation: Sitting on a wooden pallet, shiny side up, in shipping crate

Dimensions of Shipping Crate and Pallet

Shipping crate outside dimensions: 54.75" x 53.75" x 29.5"

Shipping crate inside dimensions (empty): 52.25" x 51.25" x 19.75"

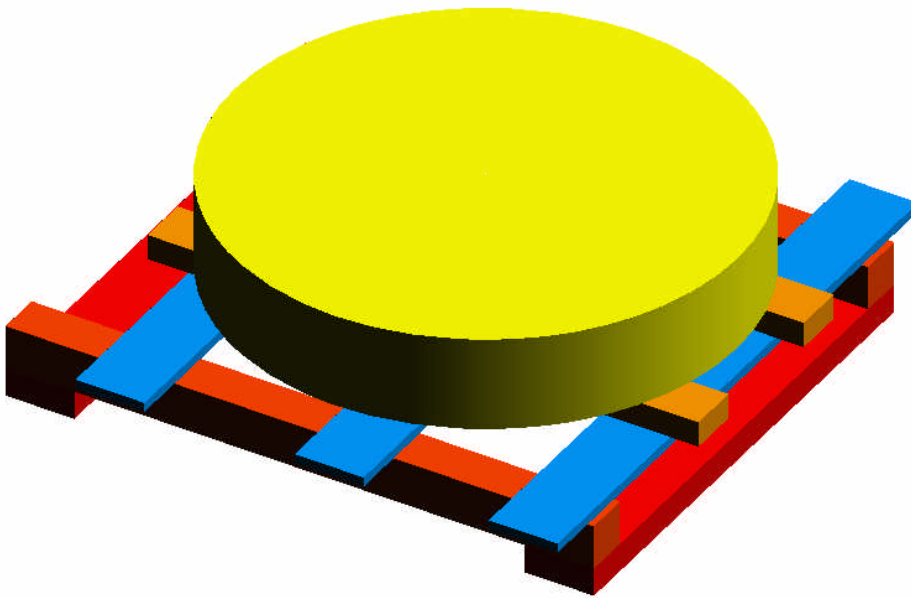
Pallet description: See Appendix A for description

Attaching the Optical Flat Collar Assembly

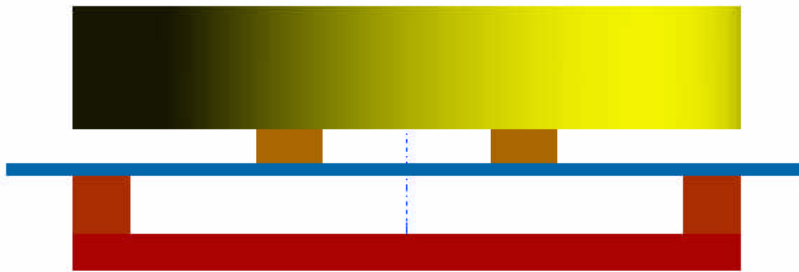
Note: The mirror is on a wooden pedestal that allows access to the upper and lower rims of the mirror. Also, the Optical Flat Collar Assembly consists of four 90 degree collar arcs, upper and lower lips, and four lifting pins.

1. Prepare mirror rim sections by cleaning, assembling, installing o-rings in grooves, etc.
2. In the optics lab, remove crate top and all four sides.
3. Install four rim sections and four load blocks around mirror
4. Install lower lip and upper lip sections on rim
5. Install lifting pins in blocks, etc.
6. Using crane in lab, lift the mirror up onto the granite table surface. For the crane attachment, use a crane anchor shackle through holes in the lifting pins.
7. Perform optical tests.

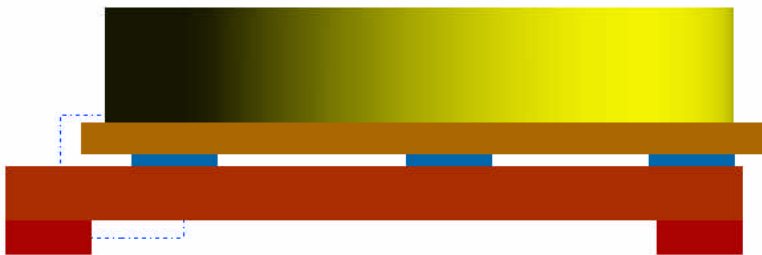
Appendix A:
Shipping Pallet AC Flat was shipped on



Isometric view

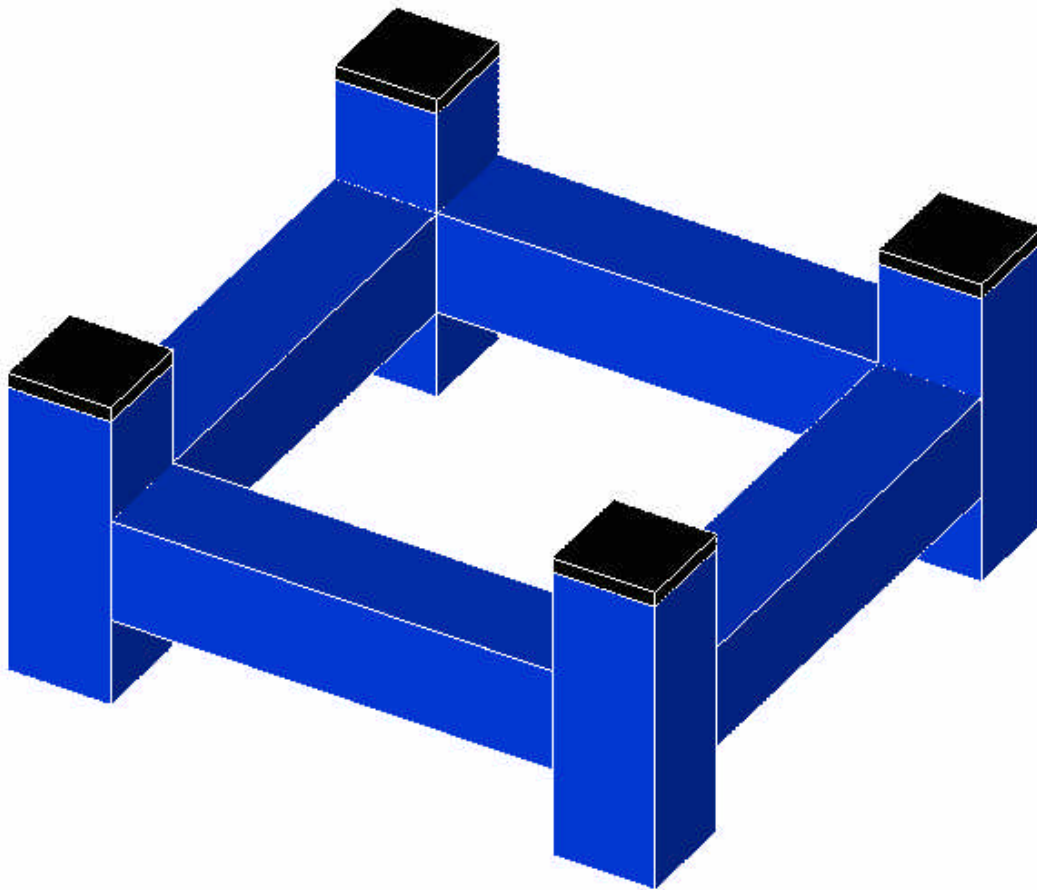


Side View 1



Side View 2

Description: Lowest level consists of two boards 2.25 x 5.5". Second level consists of two boards 3.5 x 3.5". Third level consists of three boards 5.5 x 0.75". Fourth level consists of two boards 2 x 4". There is a sheet of cardboard between mirror and the 2x4's.

Appendix B:**AC Flat Pedestal Design**

Outside Dimensions: 22" x 22" x 10.5", with 4" gap under braces (for forklift access)

Material: 4"x4" wood beams (3.5"x3.5" actual) with 0.5" thick Buna rubber pads

Note: Wooden beams wrapped in Lumalloy.